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-14-

CLAIMS

1. A coal-fired power generation system comprising means for the production of coal-derived gas and a filter system for the filtration of said coal-derived gas, said filter system comprising at least one high temperature and corrosion resistant filter (10); said filter comprising a filter medium (12) and filter caps (14); said filter medium comprising at least one layer, said layer being a web of metal fibers which has been sintered, said filter caps and said metal fibers being made from a Fe-Cr-Al based alloy, said alloy having one of the following compositions
- 15 to 25 % Cr, 4 to 6 % Al, at least one additional element selected from the group consisting of Sc, Y, Ti, Zr, Hf, V, Nb, Ta and the lanthanides, the remainder being Fe;
 - up to 15 % Cr, 20 to 60 % Al, at least one additional element selected from the group consisting of Sc, Y, Ti, Zr, Hf, V, Nb, Ta and the lanthanides, the remainder being Fe.
2. A system according to claim 1, whereby said metal fibers have a diameter between 4 μm and 30 μm .
3. A system according to claim 1, whereby said filter medium comprises at least a first layer and a second layer, said first layer comprises a web of metal fibers with a diameter between 4 μm and 12 μm , said second layer comprises a web of metal fibers with a diameter between 12 μm and 30 μm , the first and second layer are brought into contact with each other to form a layered structure, said layered structure is sintered.
4. A system according to claim 1 or 3, whereby the filter medium has a porosity between 60 and 85 %.

-15-

5. A system according to any one of claims 1 to 4, whereby a mesh is fixed to the filter medium at the flow out side, said mesh is made from a Fe-Cr-Al based alloy.
- 5 6. A system according to claim 3, whereby a mesh is sandwiched between the first and the second layer of metal fibers before the medium is sintered, said mesh is made from a Fe-Cr-Al based alloy.
- 10 7. A system according to any one of claims 1 to 6, whereby the additional element is Y with a concentration between 0.03 and 0.5 %.
8. A system according to claim 7, whereby the Y content ranges between 0.25 and 0.35 %.
- 15 9. A system according to any one of claims 1 to 6, whereby the sum of the additional elements is between 0.01 and 1 %.
10. A system according to any one of claims 1 to 9, whereby an Al_2O_3 layer is formed on the surface of said filter.
- 20 11. A system according to claim 10, whereby said Al_2O_3 layer is predominantly $\alpha\text{-Al}_2\text{O}_3$.
12. A system according to any one of claims 1 to 11, whereby said filter is a candle filter or a tubular filter.
- 25 13. A system according to claim 12, whereby said system comprises a number of filters arranged in multiple arrays.

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- The filtration of hot gases in a system according to*
14. ~~The use of a system according to any one of claims 1 to 13 for the~~
~~filtration of hot gases up to temperatures higher than 850°C.~~
any one of claims 1 to 13 at temperatures
higher than 850°C

-16-

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15. A method of increasing the yield of a coal-fired power generation system, said method comprising the steps of :
producing coal-derived gas;
filtering said coal-derived gas up to temperatures higher than 850 °C
by means of a coal-fired power generation system according to any
one of claims 1 to 13.